20th
GLORIOUS YEAR

SILVERZONE FOUNDATION
New Delhi, India

STEM
OLYMPIAD

Science | **Technology** | **Engineering** | **Mathematics**

STEM
OLYMPIAD
Geniuses are ~~born, not~~ made.

About

SilverZone STEM Innovation Olympiads (STEM) is a noble pursuit encouraging our bright youth to take part in a cause that is much bigger than themselves. A forward-thinking movement to achieve excellence in the field of Science, Technology, Engineering and Mathematics.

Structure of the Olympiad

The Olympiad is open for Classes from 3rd to Class 10th and will be conducted in two stages.

Stage 1: National Stage

In this stage the student will compete with their counterpart from their home country. They will qualify for Stage 2 only after scoring a cutoff marking of 75%.

Stage 2: Inernational Stage

In this stage the student will compete with all the students from other countries along with their home country. The top 100 winners scoring more than 75% in Stage 1 from every class of each country will be taking part in stage 2.

Test Paper

The language medium is English only. The examination is being conducted for all classes from 3rd to 10th with the following details.
For Classes 1-2: There will be 25 questions and the duration will be 40 Minutes.
For Classes 3-5: There will be 35 questions and the duration will be 40 Minutes.
For Classes 6-10: There will be 40 questions and the duration will be 50 Minutes.

The questions will be of objective type in nature with multiple choice answers. There is no negative marking.

Syllabus & Sample Questions

Science: Understanding motion; Force and its impacts; The magical world of planets, moons and stars; The three physical states of matter; Sensors of human body; Kingdom of plants and animals.

Technology & Engineering: Information Technology – Introduction to Hardware and Software, Usage of Internet; Coding using 'Scratch' – Block-based Programming Language (Beginner), Introduction to Artificial Intelligence [AI vs Human Intelligence], Intelligence assessment with Logical Reasoning;

Mathematics: Exploring Numbers; Splitting a Number; Daily Mathematics; Geometrical Shapes; Working on Data

Science

1 Some blank spaces named as X, Y and Z have been left in the table below. Which option for X, Y and Z is correct to fill the table?

Solid	Liquid	Gas
Chair	Water	Nitrogen
X	Milk	Carbon dioxide
Book	Y	Oxygen
Paper	Lemon juice	Z

A.   X-apple, Y-ice, Z-water vapour   B.   X-car, Y-blood, Z-table salt

C.   X-pen, Y-coffee, Z-air   D.   X-tea, Y-bucket, Z-cold drink

2 Sweta left her house at 6:30 PM and cycled to her friend's house. She stayed there for 30 minutes then cycled to a nearby market. She spent 1 hours in the market buying goods then return back to her house. If Sweta was cycling the distances at the uniform speed of 10 km/h, when did she return her house?

Her friend's house

9 km   6 km

Sweta's house   10 km   Market
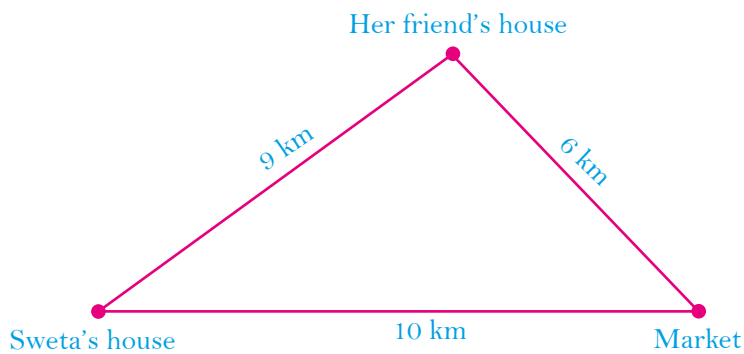
A.   8: 30 PM   B.   10: 00 PM

C.   10: 30 PM   D.   11: 30 PM

3 Which statements is/are correct with respect to the figure shown below?

1.   The boy is applying force on the box.

2.   The frictional force is opposing the motion of the box.

3.   It shows muscular force cannot move a box.

A.   1 and 2   B.   2 and 3

C.   1 and 3   D.   All 1, 2 and 3

4 A group of students made a robot just like human. The robot is doing everything fine. Now a task is given to the robot in which it has to find a red coloured pen from the group of different colours of similar pens made of same materials. The robot is unable to perform this task. The reason found was one of his sense organs was not working. Identify that sense organ.

A. Eye   B. Ear

C. Nose   D. Skin

Technology & Engineering

5 Match the following column I with column II.

Column I		Column II	
1.	Hardware	I.	
		II.	
		III.	
2.	Software	IV.	
		V.	
		VI.	
		VII.	

A. 1 → II, IV, V; 2 → I, III, VI, VII   B. 1 → I, IV, V, VI, VII; 2 → II, III

C. 1 → I, II, III, IV; 2 → V, VI, VII   D. 1 → I, IV, V, VI; 2 → II, III, VII
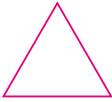
6 Which of the following is social Humanoid Robot?

A. Wall-E

B. Optimus Prime

C. Sophia

D. R2D2

7 Match the following column I with column II.

Column I		Column II	
1.		a.	
2.		b.	
3.		c.	
4.		d.	
5.		e.	

A. 1 → c, 2 → a, 3 → d, 4 → b, 5 → e

C. 1 → e, 2 → a, 3 → d, 4 → b, 5 → c

B. 1 → e, 2 → b, 3 → d, 4 → a, 5 → c

D. 1 → e, 2 → a, 3 → b, 4 → d, 5 → c

8 Arrange the given pictures in the proper sequence by using their alphabets?

P.	He playing the game after dinner	
Q.	He is sleeping	
R.	Peter is having his dinner	

A. P, Q, R   B. R, Q, P
C. Q, R, P   D. R, P, Q

Mathematics

9 In a cricket match Ravindra scored more than Prithvi but less than Rishabh. If Prithvi scored 74 runs then which of the following cannot be true?

A. scored 90 runs   B. scored 70 runs

Ravindra   Rishabh

C. scored 75 runs   D. scored 100 runs

Ravindra   Rishabh

10 Vivek distributes 12 crayons among his three friends. If 3 crayons are still left with Vivek then _____.


Crayons distributed to his 3 friends

Crayons left with Vivek

A. he distributes $\frac{4}{5}$ of total crayons to his friends.

B. he has $\frac{1}{5}$ of total number of crayons with him.

C. Both (A) and (B) are correct

D. Both (A) and (B) are not correct

11 Joy appears in an Olympiad Exam. The time duration of the exam is 50 minutes. If his exam starts at 10:30AM and he submitted his exam 10 minutes before the allotted time then at which time he submitted his exam?

A.

B.

C.

D.
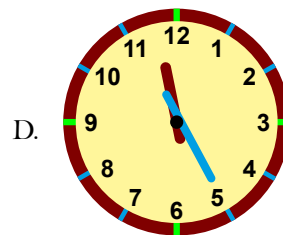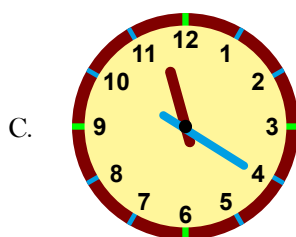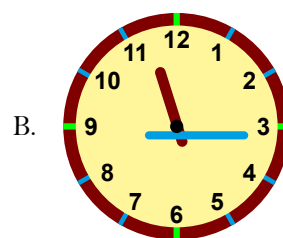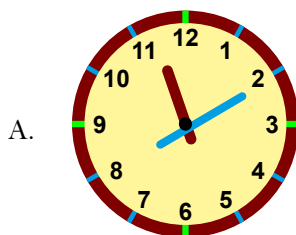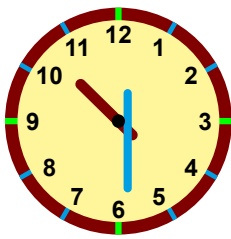
12 Consider the containers shown below:

| 2L 280ml | 10L | 3L 750ml |
| Jug | Bucket | Bowl |

If the amount of water from the jug and the bowl is poured into the empty bucket then how much water is still needed to fill the bucket completely?

A. 3L 970ml
B. 2L 970ml
C. 2L 30ml
D. 3L 70ml

ANSWERS

| 1. (C) | 2. (C) | 3. (A) | 4. (A) | 5. (D) | 6. (C) |
| 7. (C) | 8. (D) | 9. (B) | 10. (C) | 11. (A) | 12. (A) |

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